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Application No. 10/716,190

Filed: November 18, 2003

TC Art Unit: 1732

Confirmation No.: 4133

REMARKS

Claims 1-10 are currently pending. Claims 1-6 and claims 9 and 10 have been rejected under 35 U.S.C. § 102(b). Claims 7 and 8 have been rejected under 35 U.S.C. § 103(a). Claims 1, 4, 7, 9, and 10 have been amended. The Applicants respectfully traverse the grounds for rejection based on the above amendments and the following reasons.

SECTION 102(b) REJECTIONS

Claims 1-6 and claims 9 and 10 have been rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent Application Publication Number 2002/0132075 to Friend, et al. ("Friend I") and/or as anticipated by Patent Number 6,464,908 to Friend, et al. ("Friend II"). The Applicants respectfully traverse these rejections in view of the above amendments and for the reasons provided below.

Independent claim 1 recites a method for controlling a thickness of a skin layer on a composite product having the skin layer and a core layer. The method includes adding a carbon nanomaterial to either a first thermoplastic resin or to a second thermoplastic resin to cause or increase a difference in viscosity between the resins; and injection molding both resins sequentially into a common mold, using two, separate injection machines to produce a composite product so as to control the thickness of the skin layer by the difference in viscosity between the two resins. Moreover, the same gate or hot runner is used by each of the injection machines. See, e.g., Specification page 6, lines 25-33.

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The Friend references do not teach, mention or suggest controlling the thickness of the skin layer by adding a carbon nanomaterial to create a viscosity difference between two layers. Moreover, Friend I discloses, that

[t]he same effect can also be achieved using a special two-shot or multi-shot molding machine. This is an apparatus that has two or more barrels that inject polymeric materials into the same mold. Materials with different conductivities are placed in different barrels and injected into the mold separately to form a two or more layered part.

Friend I, page 4, ¶ 0046 (emphasis added). There is nothing in Friend I that teaches, mention or suggests that the second thermoplastic resin is "injected into said first thermoplastic resin" (see, e.g., Fig. 3); that, temporally, first the first thermoplastic resin is injected into the mold and, subsequently, the second thermoplastic resin is injected into the first thermoplastic resin; or that, a common gate or hot runner is used by both injection machines.

The Friend II reference merely discloses use of carbon fibrils in sheet molding compound composites, bulk molding compound composites, and reaction injection molded composites. Nothing in Friend II suggests, teaches or mentions injecting a second thermoplastic resin "into said first thermoplastic resin"; temporally, first injecting the first thermoplastic resin into the mold and, subsequently, injecting the second thermoplastic resin into the first thermoplastic resin; or both injection machines using a common gate or hot runner.

Accordingly, the Applicants maintain that the Friend references do not anticipate claims 1-6 and claims 9 and 10 under

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35 U.S.C. § 102(b) and respectfully request withdrawal of the rejections.

SECTION 103(a) REJECTIONS

The Examiner has also rejected claims 7 and 8 under 35 U.S.C. § 103(a) as unpatentable over Friend I in view of U.S. Patent Number 6,382,763 to Albuquerque ("Albuquerque"). The Applicants respectfully traverse these rejections in view of the above amendments and for the reasons provided below.

The shortcomings of the Friend references have already been discussed. Nor can the Albuquerque reference make up for the deficiencies of the Friend references. Particularly, Albuquerque does not teach, mention or suggest controlling the thickness of a skin layer by introducing a carbon nanomaterial into either of the resins comprising the skin layer or the core layer. More specifically, Albuquerque does not teach, mention or suggest injecting a second thermoplastic resin "into said first thermoplastic resin"; temporally, first injecting the first thermoplastic resin into the mold and, subsequently, injecting the second thermoplastic resin into the first thermoplastic resin; or both injection machines using a common gate or hot runner.

Accordingly, the Applicants believe that claims 7 and 8 are in condition for allowance and the rejections should be withdrawn.


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The Examiner is encouraged to telephone the undersigned attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

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